

Chapter 2

Environmental Compliance

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IT is the policy of the U.S. Department of Energy (DOE) that all activities at the Savannah River Site (SRS) be carried out in full compliance with applicable federal, state, and local environmental laws and regulations, and with DOE orders, notices, directives, policies, and guidance. Compliance with environmental regulations and with DOE orders related to environmental protection is a critical part of the operations at SRS. The purpose of this chapter is to report on the status of SRS compliance with these various statutes and programmatic documents. Some key regulations with which SRS must comply, and the compliance status of each, are listed in table 2–1.

This chapter also will provide information on Notices of Violation (NOV) issued by the U.S. Environmental Protection Agency (EPA) or the South Carolina Department of Health and Environmental Compliance (SCDHEC). NOVs are the regulatory tool used to inform organizations when their activities do not meet expected requirements. These can include NOVs against the organization's permitted activities or against the general contents of environmental regulations, such as failing to obtain construction permits prior to construction of new air release sources.

Compliance Activities

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was passed in 1976 to address solid and hazardous waste management. The law requires that EPA regulate the management of solid and hazardous wastes, such as spent solvents, batteries, and many other discarded substances potentially harmful to human health and the environment. Amendments to RCRA regulate nonhazardous solid waste and some underground storage tanks.

Hazardous waste generators, including SRS, must follow specific requirements for handling these wastes. SRS received one RCRA-related NOV during 2004. The Savannah River National Laboratory (SRNL, formerly the Savannah River Technology Center) mixed

waste tanks were found to have inadequate secondary containment. As of December 31, negotiations between SRS and SCDHEC were in progress to remove this facility from the SRS RCRA permit.

Land Disposal Restrictions

The 1984 RCRA amendments established Land Disposal Restrictions (LDRs) to minimize the threat of hazardous constituents migrating to groundwater sources. The same restrictions apply to mixed (hazardous and radioactive) waste.

Treatability variances are an option available to waste generation facilities if alternate treatment methods are appropriate for specific waste streams. SRS has identified three mixed waste streams that are potential candidates for a treatability variance. Because of special problems associated with radioactive components, these variances have been completed and sent to EPA, where they continue to await approval.

Federal Facility Compliance Act

The Federal Facility Compliance Act (FFCAct) was signed into law in October 1992 as an amendment to the Solid Waste Disposal Act to add provisions concerning the application of certain requirements and sanctions to federal facilities. A Site Treatment Plan (STP) consent order (95-22-HW, as amended) was obtained and implemented in 1995, as required by the FFCAct. A Statement of Mutual Understanding (SMU) for Cleanup Credits was executed in October 2003. The SMU allows SRS to earn credits for certain accelerated cleanup actions. Credits then can be applied to the STP commitments. SRS submitted to SCDHEC an annual update to the approved STP November 9, 2004, that identified changes in mixed waste treatment and inventory. Changes in the 2004 update include deletion of the SRNL sample material waste stream (SR-W007) because this stream was eliminated. Three waste streams were consolidated with existing waste streams. The changes identified and approved by SCDHEC for the 2003 STP update also have been included in the 2004 update. STP updates will continue to be produced annually unless provisions of the consent order are modified.

Table 2–1 Some Key Regulations With Which SRS Must Comply

Legislation	What It Requires
RCRA Resource Conservation and Recovery Act	The management of hazardous and nonhazardous wastes and of underground storage tanks containing hazardous substances and petroleum products
FFCA Act Federal Facility Compliance Act	The development by DOE of schedules for mixed waste treatment to meet LDR requirements
CERCLA; SARA Comprehensive Environmental Response, Compensation, and Liability Act (1980); Superfund Amendments and Reauthorization Act (1986)	The establishment of liability, compensation, cleanup, and emergency response for hazardous substances released to the environment
CERCLA/Title III (EPCRA) Emergency Planning and Community Right-to-Know Act (1986)	The reporting of hazardous substances used on site (and their releases) to EPA, state, and local planning units
NEPA National Environmental Policy Act (1969)	The evaluation of the potential environmental impact of federal activities and alternatives
SDWA Safe Drinking Water Act (1974)	The protection of public drinking water systems
CWA: NPDES Clean Water Act (1977); National Pollutant Discharge Elimination System	The regulation of liquid discharges at outfalls (e.g., drains or pipes) that carry effluents to streams
CAA; NESHAP Clean Air Act (1970); National Emission Standards for Hazardous Air Pollutants	The establishment of air quality standards for criteria pollutants, such as sulfur dioxide and particulate matter, and hazardous air emissions, such as radionuclides and benzene
TSCA Toxic Substances Control Act (1976)	The regulation of use and disposal of PCBs

Underground Storage Tanks

The 19 underground storage tanks at SRS that house petroleum products and hazardous substances, as defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), are regulated under Subtitle I of RCRA. These tanks require a compliance certificate annually from SCDHEC to continue operations. SCDHEC conducts an annual compliance inspection and records audit prior to issuing the compliance certificate. SCDHEC's 2004 inspection and audit found all 19 tanks to be in compliance.

High-Level Radioactive Waste Tank Closure

The primary regulatory goal of SRS's waste tank closure process at the F-Area and H-Area high-level waste (HLW) tank farms is to close the tank systems in a way that protects public health and the environment in accordance with South Carolina Regulation 61–82, "Proper Closeout of Wastewater Treatment Facilities."

Tanks 17F and 20F were closed in 1997. Waste heel removal was completed in 2003 for tanks 18F and 19F and the 242-F evaporator system, and the residual material has been sampled and characterized. These

three systems have been isolated and require only administrative safety basis controls. The next action for these tanks is grouting and operational closure.

In 2003, the Federal Court for the District of Idaho ruled that DOE's process for determining that small quantities of residual waste could remain in HLW tanks was inconsistent with the Nuclear Waste Policy Act. On October 28, 2004, President George W. Bush signed the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005. Section 3116 of the Act authorizes the Secretary of Energy, in consultation with the Nuclear Regulatory Commission, to determine that certain waste from reprocessing is not HLW and that it may instead be disposed of as low-level waste if it meets the criteria set forth in that section, as follows: (1) it does not require permanent isolation in a deep geologic repository for spent fuel or high-level radioactive waste, (2) it has had highly radioactive radionuclides removed to the maximum extent practical, and (3) it does not exceed concentration limits for Class C low-level waste and complies with performance objectives set out in subpart C of NRC regulations (10 CFR 61). DOE had begun preparation of the documentation by the end of 2004.

Activities are under way to revise the General Closure Plan and Tank Closure Modules for tanks 18F, 19F, and the 242-F evaporator system, consistent with the new legislation to support closure and to meet revised FFA dates. FFA dates for the operational closure of HLW tanks 19F and 18F were revised in 2004 with the approval of SCDHEC and EPA Region 4. The revised closure-complete dates for HLW tanks 19F and 18F are October 31, 2006, and February 28, 2007, respectively.

Waste Minimization/Pollution Prevention (WMin/P2) Program

Each operation at SRS has the goal of increasing Pollution Prevention (P2) awareness and identifying and implementing measures that minimize waste and prevent pollution. Pollution prevention is integral to the SRS Environmental Management Policy, Environmental Management System (EMS), and Integrated Safety Management System (ISMS). SRS embraces P2 as a primary strategy to operate in a compliant, cost-effective manner that protects the environment and the safety and health of employees and the public. SRS's P2 Program establishes the environmental management preference of source reduction and recycling over treatment, storage, and disposal and the preferred use of energy-efficient and resource-conservative practices and operations. P2 programs are designed to meet the requirements of RCRA, DOE orders, and applicable executive orders.

The Waste Minimization/Pollution Prevention Program scope includes both in-field generator programs and sitewide programs that affect all SRS operations. The generator program is responsible for the implementation of facility-specific improvement initiatives and is funded through each generator's operating budget.

Sitewide program coordination, which is managed by the Solid Waste Infrastructure organization, is funded separately and provides the following:

- management support of the Waste Minimization/Pollution Prevention Program
- technical assistance for facility walkdowns, lifecycle waste cost analyses, and pollution prevention opportunity assessments
- support for the SRS ALARA Center to promote radiological control and waste reduction technologies
- forums for waste minimization and P2 information and technology exchanges to support implementation of facility/activity-specific improvement initiatives
- increased employee P2 awareness and training programs
- contaminated metal and large equipment recycling and disposition
- mechanisms to increase waste generator accountability through the Solid Waste Management Council
- completion of required annual plans and regulatory reports
- implementation of sitewide initiatives such as sanitary waste recycling, Green-Is-Clean (GIC) programs, and other cost-cutting initiatives
- establishment of P2 components in SRS's Communication Plan to increase public awareness and support of P2

P2 Program Results

The SRS Pollution Prevention Program is well integrated within site operations and cleanup activities. Accomplishments during 2004 include the following:

- SRS completed 51 P2 projects, resulting in an annualized avoidance of 7,093 cubic meters of waste, with an accompanying cost avoidance of \$41.5 million.

- SRS's comprehensive industrial and office waste recycling programs recycled more than 4,200 metric tons of office and industrial waste, achieving a 34-percent recycling rate for these combined waste streams.
- SRS continued its high level of achievement by winning seven DOE National P2 Awards in FY2004. The DOE National P2 Awards Program is held each year to recognize top achievers in the area of pollution prevention throughout the DOE Complex. All programs winning DOE awards were submitted to the White House Closing the Circle Awards Program.
- The SRS Pollution Prevention Program was noted by EPA as being a well-integrated program throughout the site during the 2004 multimedia environmental program evaluation by EPA Region 4 and SCDHEC.

Comprehensive Environmental Response, Compensation, and Liability Act

SRS was placed on the National Priority List in December 1989, under the legislative authority of CERCLA (Public Law 96–510), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA, Public Law 99–499). In accordance with Section 120 of CERCLA, DOE, EPA Region 4, and SCDHEC entered into the Federal Facility Agreement (FFA), which became effective August 16, 1993.

SRS has 515 waste units in the Soil and Groundwater Closure Projects program. At the end of 2004, remediation was in progress, or had been completed, in 362 units and areas (311 complete and 51 in the remediation phase). Closure activities during 2004 included the following:

- Three RCRA Facility Investigation/Remedial Investigations (RFI/RIIs) were initiated.
 - Twelve remedial actions were initiated.
 - Five remedial actions were completed with post-construction reports/final remediation reports submitted.
 - Three removal actions were initiated.
 - Nine RODs were submitted.
 - Four RODs were approved.
 - Nine RODs with certification signatures were issued.
- One ROD amendment was approved.
 - Four Explanations of Significant Difference (ESD) were submitted.

No interim-action post-construction reports were submitted in 2004.

A listing of all waste units at SRS can be found in appendix C (“RCRA/CERCLA Units List”) and appendix G (“Site Evaluation List”) of the FFA.

Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 requires facilities to notify state and local emergency planning entities about their hazardous chemical inventories and to report releases of hazardous chemicals. The Pollution Prevention Act of 1990 expanded the Toxic Chemical Release Inventory report to include source reduction and recycling activities.

Tier II Inventory Report

Under Section 312 of EPCRA, SRS completes an annual Tier II Inventory Report for all hazardous chemicals present at the site in excess of specified quantities during the calendar year. Hazardous chemical storage information is submitted to state and local authorities by March 1 for the previous calendar year.

Toxic Chemical Release Inventory Report

Under Section 313 of EPCRA, SRS must file an annual Toxic Chemical Release Inventory report by July 1 for the previous year. SRS calculates chemical releases to the environment for each regulated chemical that exceeds its established threshold, and reports the release values to EPA on Form R of the report.

For 2004, SRS identified 11 chemicals, with releases totaling 261,356 pounds. Lead, nitrate, and zinc were the largest contributors to the total reportable releases in 2004.

Executive Order 12856

Executive Order 12856, “Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements,” requires that all federal facilities comply with right-to-know laws and pollution prevention requirements. SRS complies with the applicable reporting requirements for EPCRA, as indicated in table 2–2, and the site incorporates the toxic chemicals on the Toxic Release Inventory report into its pollution prevention efforts.

Table 2–2 SRS Reporting Compliance with Executive Order 12856

EPCRA Citation	Activity Regulated	Reported per Applicable Requirement
302–303	Planning Notification	Not Required ^a
304	Extremely Hazardous Substances Release Notification	Not Required ^a
311–312	Material Safety Data Sheet/ Chemical Inventory	Yes
313	Toxic Release Inventory Reporting	Yes

^aNot required to report under provisions of “Executive Order 12856” and SARA Title III Reporting Requirements

National Environmental Policy Act

The National Environmental Policy Act (NEPA) establishes policies and goals for the protection, maintenance, and enhancement of the human environment in the United States. NEPA provides a means to evaluate the potential environmental impact of major federal activities that could significantly affect the quality of the environment and to examine alternatives to those actions.

In 2004, 263 reviews of newly proposed actions were conducted at SRS and formally documented. The types and numbers of NEPA activities conducted on site in 2004 are presented in table 2–3. Among the specific activities were the following:

- A FONSI was issued for the construction, operation, and eventual closure of the Burma Road II Borrow Pit and its alternatives. The proposed action involved construction of a borrow pit to provide SRS with a new source of structural fill material for site projects and included 80 acres to meet site needs past the year 2020.
- The final West Valley Demonstration Project (WVDP) Waste Management EIS (DOE/EIS–0337) was issued in January 2004. The proposed action is to ship radioactive waste that either is in storage on the WVDP site, or that will be generated to continue managing WVDP’s onsite waste storage tanks. The final EIS also analyses an alternative under which certain wastes would be shipped to interim offsite storage locations, including SRS, prior to disposal. The preferred alternative does not include SRS. No publication date had been determined for a ROD by the end of 2004.

Safe Drinking Water Act

The federal Safe Drinking Water Act (SDWA) was enacted in 1974 to protect public drinking water supplies. SRS domestic water is supplied by 17 separate systems, all of which utilize groundwater sources. The A-Area, D-Area, and K-Area systems are actively regulated by SCDHEC, while the remaining 14 site water systems receive less frequent regulatory inspections.

Samples are collected and analyzed periodically by SRS and SCDHEC to ensure that all site domestic water systems meet SCDHEC and EPA bacteriological and chemical drinking water quality standards. All samples collected in 2004 met these standards, including A-Area lead and copper samples.

Table 2–3 Types/Quantity of NEPA Activities at SRS During 2004

Type of NEPA Documentation	Number
Categorical Exclusion	234
Tiered to Previous NEPA Documentation	18
Environmental Assessment	2
Supplement Analysis	2
Engineering Evaluation/Cost Analysis	4
Environmental Impact Statement	1
Supplemental Environmental Impact Statement	1
Programmatic Environmental Impact Statement	1
Total	263

The B-Area Bottled Water Facility no longer is listed by SCDHEC as a public water system as its source water is provided by the A-Area water system. SCDHEC's Division of Food Protection will continue to conduct periodic inspections of this facility. Results from quarterly bacteriological analyses and annual complete chemical analyses performed in 2004 met SCDHEC and FDA water quality standards. The bottled water facility is not subject to the lead and copper requirements.

EPA conducted an inspection of the B-Area Bottled Water Facility and A-Area, D-Area, and K-Area domestic water systems in June 2004. This inspection was conducted as part of a multimedia inspection by EPA. No findings were identified as a result of the inspection.

SRS received no NOV's in 2004 under the SDWA.

Clean Water Act

National Pollutant Discharge Elimination System

The Clean Water Act (CWA) of 1972 created the National Pollutant Discharge Elimination System (NPDES) program, which is administered by SCDHEC under EPA authority. The program is designed to protect surface waters by limiting releases of nonradiological effluents into streams, reservoirs, and wetlands.

SRS had three NPDES permits in 2004, as follows:

- One permit for industrial wastewater discharge (SC0000175)
- Two general permits for stormwater discharge (SCR000000 for industrial and SCR100000 for construction)

More information about the NPDES permits can be found in chapter 3, "Effluent Monitoring."

The results of monitoring for compliance with the industrial wastewater discharge permit were reported to SCDHEC in the monthly discharge monitoring reports, as required by the permit.

During October, SCDHEC conducted its annual 2-week audit of the SRS NPDES permitted outfalls. As of December 31, SRS had not received the final audit report, so the final rating for the site was not known.

The outfalls covered by the industrial stormwater permit (SCR000000) were reevaluated in 2003. This resulted in the development of a new sampling plan, which was implemented in 2004. Results of preliminary studies of

NPDES outfalls conducted in 2004 (in anticipation of a new permit) appear in an effluent monitoring data table on the CD accompanying this report.

Under the Code of Federal Regulations (CFR) Oil Pollution Prevention regulation (40 CFR 112), SRS must report petroleum product discharges of 1,000 gallons or more into or upon the navigable waters of the United States, or petroleum product discharges in harmful quantities that result in oil sheens. No such incidents occurred at the site during 2004.

SRS has an agreement with SCDHEC to report petroleum product discharges of 25 gallons or more to the environment. No such incident occurred at the site during 2004.

Notices of Violation (NPDES)

SRS's 2004 compliance rate for the NPDES program under the CWA was 99.8 percent. One NOV was issued to the site during 2004 in association with the NPDES program.

SRS received the NOV from SCDHEC September 13 for permit exceedances for total suspended solids (TSS) at the F-01 NPDES outfall. A definitive cause for the exceedances was not established. Several probable causes were identified during the event critique. The primary contributor was determined to be runoff from decommissioning and demolition (D&D) activities in the outfall drainage area. Secondary contributors were runoff from a graveled area by the Old Fire Station Slab and the change from grab to composite sampling in the new NPDES permit. Subsequent samples obtained at the outfall were below permit limits. Additional controls were established for site D&D activities to prevent recurrence of the problem. No further action was required by SCDHEC.

Seven exceedances at NPDES outfalls occurred at SRS in 2004. A list of these—including outfall locations, probable causes, and corrective actions—can be found in chapter 3 (table 3-4).

Dredge and Fill; Rivers and Harbors

The CWA, Section 404, "Dredge and Fill Permitting," as amended, and the Rivers and Harbors Act, Section 9 and 10, "Construction Over and Obstruction of Navigable Waters of the United States," protect U.S. waters from dredging and filling and construction activities by the permitting of such projects. Dredge-and-fill operations in U.S. waters are defined, permitted, and controlled through implementation of federal regulations in 33 CFR and 40 CFR.

In 2004, SRS conducted activities under three Nationwide Permits (NWP) as part of the NWP program (general permits under Section 404), but under no individual Section 404 permits. The activities were as follows:

- Dam construction on an unnamed tributary to Fourmile Branch for the Mixed Waste Management Facility Groundwater Interim Measures project was conducted under NWP-38, "Hazardous Waste Cleanup." Mitigation for the impact to wetlands must be addressed before the permit can be considered closed.
- The Pond B Dam Repair Project was permitted by letter from the U.S. Army Corps of Engineers in September 2003 under NWP-3, "Maintenance." The Pond B dam repair was completed and the permit was closed in September 2004.
- The Mixed Waste Management Facility dam intake structure modification was applied for under NWP-38, "Hazardous Waste Cleanup." The modification will improve the efficiency of the treatment system for tritium. The approved permit was received in March 2004.

Construction in Navigable Waters

SCDHEC Regulation 19-450, "Permit for Construction in Navigable Waters," protects the state's navigable waters. The only state navigable waters at SRS are Upper Three Runs Creek (through the entire site) and Lower Three Runs Creek (upstream to the base of the PAR Pond Dam).

No Construction in Navigable Waters permit activities occurred in 2004.

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act controls the application of restricted-use pesticides at SRS through a state-administered certification program. The site complies with these requirements through Procedure 8.1, "Federal Insecticide, Fungicide, and Rodenticide Act Compliance for Use of Pesticides," of the Environmental Compliance Manual (3Q).

The SRS pesticide procedure provides guidelines for pesticide use and requires that applicators of restricted-use pesticides be state certified. The procedure continues to undergo major revisions that were begun in 2004 with the aim of streamlining and improving it.

Clean Air Act

Regulation and Delegation

The Clean Air Act (CAA) and the Clean Air Act Amendments (CAAA) of 1990 provide the basis for protecting and maintaining air quality. Though EPA still maintains overall authority for the control of air pollution, regulatory authority for most types of emission sources has been delegated to SCDHEC. Therefore, SCDHEC must ensure that its air pollution regulations are at least as stringent as the federal requirements. This is accomplished through SCDHEC Regulation 61-62, "Air Pollution Control Regulations and Standards." The various CAAA Titles covered by these SCDHEC regulations are discussed below.

Title V Operating Permit Program

Under the CAA, and as defined in federal regulations, SRS is classified as a "major source" and, as such, falls under the CAAA Title V Operating Permit Program. On February 19, 2003, SCDHEC's Bureau of Air Quality issued SRS its Part 70 Air Quality Permit, TV-0080-0041, which had an effective date of April 1, 2003, and an expiration date of March 31, 2008. As issued, the Part 70 Air Quality Permit regulates both radioactive and nonradioactive toxic and criteria pollutant emissions from approximately 98 nonexempt emission units, with each emission unit having specific emission limits, operating conditions, and monitoring and reporting requirements. The permit also contains a listing, known as the Insignificant-Activities List, identifying 1,329 SRS sources that are exempt based on insignificant emission levels, or equipment size or type. During 2004, SRS also held two construction permits: one for a new facility that is under construction and the other that permitted five existing and five new soil vapor extraction units under one emission unit permit.

During 2004, SCDHEC issued four revisions to the SRS Part 70 Air Quality Permit, in which 35 of the permitted nonexempt emission units were voided on the permit. Of those 35 emission units, eight had been removed from service and the other 27 had been reclassified as exempt sources and placed on the Insignificant-Activities List. Of the permitted nonexempt emission units, four units were maintained in a "cold standby" status and the remaining units were operated in some capacity in 2004.

Compliance with the SRS Part 70 Air Quality Permit conditions was evaluated by both EPA and SCDHEC during 2004 as part of the EPA multimedia assessment, and subsequently by SCDHEC during the Annual Air Compliance Inspection. It was determined that SRS

air emission sources were operating in compliance with their respective permit conditions and limitations.

Notices of Violation (CAA)

No Notices of Violation were issued to SRS under the CAA in 2004.

National Emission Standards for Hazardous Air Pollutants

The National Emission Standards for Hazardous Air Pollutants (NESHAP) is a CAA-implementing regulation that sets air quality standards for air emissions containing hazardous air pollutants, such as radionuclides, benzene, and asbestos. The current list of 189 air pollutants includes all radionuclides as a single item. Regulation of these pollutants has been delegated to SCDHEC; however, EPA Region 4 continues to regulate some aspects of NESHAP radionuclides.

NESHAP Radionuclide Program Subpart H of 40 CFR 61 was issued December 15, 1989, after which an evaluation of all air emission sources was performed to determine compliance status. The Savannah River Operations Office (DOE-SR) and EPA Region 4 signed a Federal Facility Compliance Agreement (FFCA) October 31, 1991, providing a schedule to bring SRS's emissions monitoring into compliance with regulatory requirements. The FFCA was officially closed—and the site declared compliant—by EPA Region 4 May 10, 1995. Subpart H was revised by EPA September 9, 2002, with an effective date of January 1, 2003. This revision added inspection requirements for existing SRS sources and allowed the use of ANSI N13.1–1999 for establishing monitoring requirements. SRS is performing all required inspections, has monitoring systems compliant with the regulation, and remains in compliance with Subpart H of 40 CFR 61.

During 2004, the maximally exposed individual effective dose equivalent, calculated using the NESHAP-required CAP88 computer code, was estimated to be 0.06 mrem (0.0006 mSv), which is 0.6 percent of the 10 mrem per year (0.10 mSv per year) EPA standard (chapter 5, “Potential Radiation Doses”).

NESHAP Nonradionuclide Program

SRS uses many chemicals identified as toxic or hazardous air pollutants, but most of them are not regulated under the CAA or under federal NESHAP regulations. Except for asbestos, SRS facilities and operations do not fall into any of the “categories” listed in the original subparts. Under Title III of the federal Clean Air Act Amendments (CAAA) of 1990, EPA in December 1993 issued a final list of hazardous air

pollutant-emitting source categories potentially subject to maximum achievable control technology (MACT) standards.

As a result of (1) EPA failing to meet the original rule development schedule and (2) a subsequent lawsuit by an environmental watch group (The Sierra Club), a settlement agreement was reached in November 2002 that resulted in EPA proposing a new schedule for promulgating the final rules for the remaining MACT source categories. This extended the rule development date to August 2005. As of December 31, 2004, EPA had been able to meet the new schedule and has promulgated several new MACT rules.

During 2004, EPA published three MACT rules with potential impact to SRS facilities. Two of the rules, “Miscellaneous Metal Parts and Products (MMPP), Surface Coatings” and “Reciprocating Internal Combustion Engines (RICE),” were applicable to some existing SRS facilities but included exemptions that excluded the SRS sources from being subject to the rules. As written, the MMPP MACT impacts the SRS construction paint facility in N-Area such that the site will have to document future paint usage to demonstrate compliance with the 250-gallon-per-year usage exemption. Under the RICE MACT, existing diesel-powered equipment is exempt, but future nonemergency RICE equipment will have to meet the control requirements of the rule. The third MACT rule impacting SRS is for “Industrial, Commercial, and Institutional Boilers and Process Heaters.” SRS currently operates two coal-fired boilers that are subject to the rule and will have to comply with the rule by September 2007. The precise impacts of this rule still were being evaluated at the end of 2004.

In an attempt to regulate hazardous or toxic air pollutants in South Carolina, SCDHEC established Air Pollution Control Regulation 61–62.5, Standard No. 8, “Toxic Air Pollutants,” in June 1991. To date, SRS has continued to demonstrate compliance with this standard for all existing and new sources of toxic air pollutants. During 2004, SRS submitted one permit application, which included the results of an air dispersion modeling analysis, for 10 soil vapor extraction units that emit toxic air pollutants at a rate that was in compliance with this regulation.

Accidental Release Prevention Program

Under Title III of the CAAA, EPA established a program for the prevention of accidental releases of large quantities of hazardous chemicals. As outlined in Section 112(r), any facility that maintains specific hazardous or extremely hazardous chemicals in

quantities above specified thresholds must develop a risk management program (RMP). The RMP establishes methods that will be used for the containment and mitigation of large chemical spills.

SRS's RMP maintains hazardous and extremely hazardous chemical inventories below the threshold quantity. This cost-effective approach minimizes the regulatory burden of 112(r) but does not eliminate any liability associated with the general duty clause, as stated in 112(r)(1). To date, no hazardous or extremely hazardous chemical releases have been reported by SRS.

EPA issued a revision to its RMP final rule April 9, 2004, changing reporting requirements of its chemical accident prevention regulations. Chemical facilities subject to these regulations now are required to submit significant-chemical-accident information and emergency contact information. These changes seek to improve and assist federal, state, and local risk management programs in implementing the new homeland security measures.

NESHAP Asbestos Abatement Program

SRS began its asbestos abatement program in 1988 and continues to manage asbestos-containing material by "best management practices." Site compliance in asbestos abatement, as well as demolitions, falls under South Carolina and federal regulations, including SCDHEC Regulation R.61–86.1 ("Standards of Performance for Asbestos Projects") and 40 CFR 61, Subpart M ("National Emission Standards for Hazardous Air Pollutants - Asbestos").

During 2004, SRS personnel removed and disposed of an estimated 295 square feet and 2,185 linear feet of regulated asbestos-containing material. SRS personnel also removed 108,557 square feet, 2,857 linear feet, and 2 cubic feet of nonregulated asbestos-containing material.

Radiological asbestos waste was disposed of at the SRS E-Area low-level vaults, engineered trench, and slit trench, which are permitted by SCDHEC as asbestos waste disposal sites. Nonradiological asbestos waste was disposed of at the Three Rivers Solid Waste Authority Landfill and the C&D Landfill (Building 632-G), which also are SCDHEC-approved asbestos waste landfills.

Ozone-Depleting Substances

Title VI of the CAAA of 1990 addresses stratospheric ozone protection. This law requires that EPA establish a number of regulations to phase out the production and consumption of ozone-depleting substances (ODSs).

Several sections of Title VI of the CAAA of 1990, along with recently established EPA regulations found in 40 CFR 82, apply to the site. The ODSs are regulated in three general categories, as follows:

- *Class I substances* – chlorofluorocarbons (CFCs), Halons, carbon tetrachloride, methyl chloroform, methyl bromide, and hydrobromofluorocarbons (HBFCs)
- *Class II substances* – hydrochlorofluorocarbons (HCFCs)
- *Substitute substances*

The "Savannah River Site Refrigerant Management Plan," completed and issued in September 1994, provides guidance to assist SRS and DOE in the phaseout of CFC refrigerants and equipment.

SRS has reduced CFC refrigerant usage in large ODS emission sources more than 99 percent compared to 1993 baseline data. The site used 50 pounds of CFC refrigerants in large ODS sources in 2003 and 45 pounds in 2004.

The SRS CAAA of 1990 Title V operating air permit application includes ODS emission sources. All large (greater than or equal to 50-pound charge) heating, ventilation, and air conditioning/chiller systems for which there are recordkeeping requirements are included as fugitive emission sources.

SRS is phasing out its use of Halon as part of a goal to eliminate use of Class I ODSs by 2010 "to the extent economically practicable."

A Halon 1301 phaseout plan and schedule have been developed by Fire Protection Engineering to help meet DOE's goal. The plan includes an SRS Halon 1301 fire suppression system inventory that identifies systems in operation, systems abandoned in place, and systems that have been dismantled and taken to the DOE complex's Halon repository, located at SRS.

Halon 1301 total inventory on site decreased from 102,285 pounds in 2002 to 75,577 pounds in 2003 and 74,664 pounds in 2004. The site had an inventory of 52,645 pounds of stored Halon 1301 at the end of 2004, after having received approximately 2,206 pounds from Pantex. In addition, 22,019 pounds are contained in the 94 operating systems (down from 111 in 2002). During 2004, the two remaining systems abandoned in place that still contained Halon charges were dispositioned.

Air Emissions Inventory

SCDHEC Regulation 61–62.1, Section III ("Emissions Inventory"), requires compilation of an air emissions

inventory for the purpose of locating all sources of air pollution and defining and characterizing the various types and amounts of pollutants. To demonstrate compliance, SRS personnel conducted the initial comprehensive air emissions inventory in 1993. The inventory identified approximately 5,300 radiological and nonradiological air emission sources. Source operating data and calculated emissions from 1990 were used to establish the SRS baseline emissions and to provide data for air dispersion modeling. This modeling was required to demonstrate sitewide compliance with Regulation 61–62.5, Standard No. 2 (“Ambient Air Quality Standards”), and Standard No. 8.

Regulation 61–62.1, Section III, requires that inventory data be updated and recorded annually but reported only every even calendar year. The emissions inventory is updated each year in accordance with SRS procedures and guidelines. Calendar year 2003 operating data for permitted and other significant sources were collected and reported to SCDHEC in 2004. Because data collection for all SRS sources begins in January and requires up to six months to complete, this report provides emissions data for calendar year 2003. Compilation of 2004 data will be completed in 2005 but will not have to be submitted to SCDHEC. Emissions data for 2004 will be reported in the *SRS Environmental Report for 2005*.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) gives EPA comprehensive authority to identify and control chemical substances manufactured, imported, processed, used, or distributed in commerce in the United States. Reporting and record keeping are mandated for new chemicals and for any chemical that may present a substantial risk of injury to human health or the environment.

Polychlorinated biphenyls (PCBs) have been used in various SRS processes. The use, storage, and disposal of these organic chemicals are specifically regulated under 40 CFR 761, which is administered by EPA. SRS has a well-structured PCB program that complies with this TSCA regulation, with DOE orders, and with WSRC policies.

The site’s 2003 PCB document log was completed in full compliance with 40 CFR 761, and the 2003 annual report of onsite PCB disposal activities was submitted to EPA Region 4 in July 2004. The disposal of nonradioactive PCBs routinely generated at SRS is conducted at EPA-approved facilities within the regulatory period. For some forms of radioactive PCB wastes, disposal capacity is not yet available, and

the wastes must remain in long-term storage. Such wastes are held in TSCA-compliant storage facilities in accordance with 40 CFR 761.

Endangered Species Act

The Endangered Species Act of 1973, as amended, provides for the designation and protection of wildlife, fish, and plants in danger of becoming extinct. The act also protects and conserves the critical habitats on which such species depend.

Several threatened and endangered species exist at SRS, including the wood stork, the red-cockaded woodpecker, the bald eagle, the shortnose sturgeon, the pondberry, and the smooth purple coneflower. Programs designed to enhance the habitat and survival of such species are in place.

Five biological assessments and/or biological evaluations were prepared for SRS in 2004, of which two were for NEPA documents for new projects at SRS. The projects covered the Burma Road II Borrow Pit and NPDES Outfall Permit compliance. In addition, to ensure protection of threatened and endangered species, three biological assessments and biological evaluations were conducted to evaluate potential impacts of forestry related activities. None of these activities was found to have had any significant potential impact on threatened and endangered species.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, Section 106, governs the protection and preservation of archaeological and historical resources. SRS ensures that it is in compliance with the NHPA through several processes. The Cold War Programmatic Agreement was signed in July 2004; the SRS Cold War Built Environment Cultural Resource Management Plan is in its final stages of drafting; and the implementation of these documents is under way. The Artifact Selection team, which includes DOE, WSRC, and the University of South Carolina Savannah River Archaeological Research Program (SRARP), meets monthly and is responsible for overseeing the selection, collection, and curation of Cold War-era artifacts from buildings prior to D&D activities.

In addition, the site helps ensure that it remains in compliance with NHPA through its Site Use Program. All sites being considered for activities such as construction are evaluated by SRARP personnel to ensure that archaeological or historic sites are not impacted. Reviews of timber compartment prescriptions include surveying for archaeological resources and

documenting areas of importance with regard to historic and prehistoric significance.

SRARP personnel reviewed 48 site-use packages during 2004, of which six proposed land modifications resulted in the need to survey 365 acres. The remainder of the site-use packages were found to have no activities of significant impact in terms of the NHPA. SRARP personnel also surveyed 1,316 acres in 2004 in support of onsite forestry activities.

The surveys of the 1,681 total acres resulted in 80 site investigations of 71 new archaeological sites and in revisits to nine previously recorded sites for cultural resources management.

To comply with NHPA, Site 38AK155 was excavated as mitigation in anticipation of construction at the Surplus Plutonium Disposition Facilities site. The excavation was completed in November 2004.

Floodplains and Wetlands

Under 10 CFR, Part 1022 (“Compliance with Floodplains and Wetlands Environmental Review Requirements”) DOE establishes policies and procedures for implementing its responsibilities in terms of compliance with Executive Orders 11988 (“Floodplain Management”) and 11990 (“Protection of Wetlands”). Part 1022 includes DOE policies regarding the consideration of floodplains/wetlands factors in planning and decision making. It also includes DOE procedures for identifying proposed actions involving floodplains/wetlands, providing early public reviews of such proposed actions, preparing floodplains/wetlands assessments, and issuing statements of findings for actions in floodplains.

A floodplains/wetlands assessment was conducted in 2004 for the F&H-Area Underground Barrier Wall/Base Injection System. Also, a wetland assessment was conducted in the inner swamp at TNX to document a wetland that is to be remediated under CERCLA.

Executive Order 11988

Executive Order 11988 (“Floodplain Management”) was established to avoid long- and short-term impacts associated with the occupancy and modification of floodplains. The evaluation of impacts to SRS floodplains is ensured through the NEPA Evaluation Checklist and the site-use system. Site-use applications are reviewed for potential impacts by WSRC, DOE–SR, the USDA Forest Service–Savannah River and the Savannah River Ecology Laboratory (SREL), as well as by professionals from other organizations.

Executive Order 11990

Executive Order 11990 (“Protection of Wetlands”) was established to mitigate adverse impacts to wetlands caused by the destruction and modification of wetlands and to avoid new construction in wetlands wherever possible. Avoidance of impact to SRS wetlands is ensured through the site-use process, various departmental procedures and checklists, and project reviews by the SRS Wetlands Task Group. Many groups and individual—including scientists from SRNL, SREL, and the Environmental Services Section—review site-use applications to ensure that proposed projects do not impact wetlands.

Environmental Release Response and Reporting

Response to Unplanned Releases

Environmental Monitoring and Analysis (EMA) personnel respond to unplanned environmental releases, both radiological and nonradiological, upon request by area operations personnel. No unplanned environmental releases occurred at SRS in 2004 that required the sampling and analysis services of EMA.

Occurrences Reported to Regulatory Agencies

Federally permitted releases comply with legally enforceable licenses, permits, regulations, or orders. If a nonpermitted release to the environment of a reportable quantity or more of a hazardous substance (including radionuclides) occurs, CERCLA requires notification of the National Response Center. Also, the CWA requires that the National Response Center be notified if an oil spill causes a “sheen” on navigable waters, such as rivers, lakes, or streams. Oil spill reporting was reinforced with liability provisions in the CERCLA National Contingency Plan.

SRS had no CERCLA-reportable releases in 2004. This performance compares with zero releases reported during 2000, 2001, 2002, and 2003; one release in 1999; and one in 1998.

Four notifications, not required by CERCLA, were made by the site to regulatory agencies during 2004. Three were the result of an agreement to notify SCDHEC about sewage reaching waters of the state. During a thunderstorm, three portable toilets were dislodged, and sanitary waste reached wet-weather ditches. The fourth was the result of discharging well-development water onto the ground prior to characterization.

EPCRA (40 CFR 355.40) requires that reportable releases of extremely hazardous substances or CERCLA hazardous substances be reported to any local emergency planning committees and state emergency response commissions likely to be affected by the release. No EPCRA-reportable releases occurred in 2004.

Site Item Reportability and Issues Management Program

The Site Item Reportability and Issues Management (SIRIM) program, mandated by DOE Order 232.1A (“Occurrence Reporting and Processing of Operations Information”) is designed to “. . . establish a system for reporting of operations information related to DOE-owned or operated facilities and processing of that information to provide for appropriate corrective action” It is the intent of the order that DOE be “. . . kept fully and currently informed of all events which could (1) affect the health and safety of the public; (2) seriously impact the intended purpose of DOE facilities; (3) have a noticeable adverse effect on the environment; or (4) endanger the health and safety of workers.”

Of the 242 SIRIM-reportable events in 2004, the following were categorized as environmental:

- Portable toilets were discovered tipped over by high winds during a thunderstorm. Sewage reached storm sewers and water of the state (two events).
- Approximately 5,360 gallons of well-development water was discharged directly to the ground. It was determined that this water contained trichloroethylene (TCE) in a concentration that exceeded toxicity characteristic leaching procedure (TCLP) levels and was classified as a hazardous waste.
- A SeaLand container leaked radioactive liquid onto a truck bed and the ground. A total of 21,000 disintegrations per minute per 100 square centimeters (cm²) of tritium were detected.
- A leak in a chromate cooling-water system released sodium chromate into the environment below a reportable quantity.
- A lab sample containing 911 mg/L of mercury was poured down a laboratory drain erroneously. The lab sample exceeded the 260-mg/L Land Disposal Restriction limit threshold.

Assessments/Inspections

The SRS environmental program is overseen by a number of organizations, both outside and within the DOE complex. In 2004, the WSRC environmental appraisal program consisted of self and independent assessments. The program ensures the recognition of noteworthy practices, the identification of performance deficiencies, and the initiation and tracking of associated corrective actions until they are satisfactorily completed. The primary objectives of the WSRC assessment program are to ensure compliance with regulatory requirements and to foster continuous improvement. The program is an integral part of the site’s Safety Management System and supports the SRS Environmental Management System, which continues to meet the standards of International Organization for Standardization (ISO) 14001. (ISO 14000 is a family of voluntary environmental management standards and guidelines.)

WSRC conducted several environmental program-level assessments in 2004. The topics included

- NEPA Implementation
- Toxic and Chemical Materials: Asbestos
- Environmental Monitoring: Sample Management
- Environmental Radiation Protection: Dose Calculation
- Air Quality Protection: Ozone-Depleting Substances
- Surface Water Quality: NPDES Implementation
- Biological Monitoring Programs

During 2004, personnel from DOE–SR’s Environmental Quality and Management Division continued to perform direct oversight and evaluation of WSRC’s self-assessment program. Completed DOE assessments have met with positive results; routine assessments have promoted improvement and helped ensure the adequacy of environmental programs and operations at SRS.

SCDHEC and EPA personnel also performed external inspections of the SRS environmental program for regulatory compliance. Agency representatives performed several comprehensive compliance inspections in 2004, as follows:

- *RCRA Compliance Evaluation Inspection* – The annual compliance evaluation inspection was conducted by EPA and SCDHEC. As of December 31, 2004, no results or deficiencies had been reported.

- *Annual Air Compliance Inspection* – SCDHEC conducted the annual air compliance inspection of operating SRS permitted sources. In general, the site was found to be in compliance with each source's respective permit condition and requirement.
- *Annual Underground Storage Tank Inspection* – SCDHEC inspected the site's 19 underground storage tanks. All were found to be in compliance with applicable regulations.
- *Annual NPDES 3560 Compliance Audit* – SCDHEC conducted the annual 3560 environmental audit of the site's NPDES-permitted outfalls. As of December 31, SRS had not received the final audit report, so the final rating for the site was not known.
- *Quarterly Inspections of SRS Bottled Water Facility* – SCDHEC conducted quarterly inspections of the SRS Bottled Water Facility. The facility was found to be in compliance.
- *Burma Road C&D Landfill, Burma Road Structural Fill, 632-G C&D Landfill, 288-F Industrial Waste Landfill, and Saltstone Inspection* – SCDHEC conducted quarterly inspections, and all the sites were found to be satisfactory, with no observed deficiencies.
- *Interim Sanitary Landfill* – SCDHEC personnel conducted an annual post-closure inspection, and the site was found to be satisfactory, with no observed deficiencies.
- *Groundwater Comprehensive Monitoring Evaluation* – SCDHEC conducted an unannounced RCRA inspection of SRS's groundwater program. No deficiencies or permit violations were cited.

Environmental Training

The site's environmental training program identifies training activities to teach job-specific skills that protect the employee and the environment, in addition to satisfying regulatory training requirements. Regularly scheduled classes in this program at SRS include such topics as Environmental Laws and Regulations, Hazardous Waste Worker, Hazardous and Radiological Waste Characterization, and the Environmental Compliance Authority course. A self-taught Environmental Laws and Regulations course is available on SHRINE for technical staff and is updated by ESS annually. More than 60 environmental program-related training courses are listed in the site training database, and individual organizations schedule and perform other facility-specific, environment-related training to ensure that operations and maintenance personnel, as well as environmental professionals, have the knowledge and skills to perform work safely and in a manner that protects the environment.

Environmental Permits

SRS had 403 construction and operating permits in 2004 that specified operating levels for each permitted source. Table 2-4 summarizes the permits held by the site during the past five years. These numbers reflect only permits obtained by WSRC for itself and for other SRS contractors that requested assistance in obtaining permits. It also should be noted that these numbers include some permits that were voided or closed some time during the calendar year (2004). The continued reduction in the number of environmental permits reflects site efforts to (1) close permits as facilities are deactivated or decommissioned and (2) consolidate and streamline facility permits to help improve operating and administrative efficiency.

Table 2–4 SRS Construction and Operating Permits, 2000–2004

Type of Permit	Number of Permits				
	2000	2001	2002	2003	2004
Air	199	172	150	2 ^a	3
U.S. Army Corps of Engineers 404	0	0	0	0	0
Army Corps of Engineers Nationwide Permit	1	5	5	5	3
Domestic Water	203	203	203	202	203
Industrial Wastewater	77	70	66	60	56
NPDES Discharge	1	1	1	1	1
NPDES General Utility	1	0	0	0	0
NPDES No Discharge	1	1	1	1	1
NPDES Stormwater	2	2	2	2	2
RCRA	1	1	1	1	1
Sanitary Wastewater	133	133	133	109	104
SCDHEC 401	1	1	0	0	0
SCDHEC Navigable Waters	0	1	1	0	0
Solid Waste	5	4	2	3	4
Underground Injection Control	23	20	18	19	18
Underground Storage Tanks	7	7	7	7	7
Totals	655	621	590	412	403

^aThis number was revised to reflect the Title V Operating Permit, which includes all SRS air emission sources and one construction permit.

Editor's note: The "Environmental Compliance" chapter is unique in that the number of contributing authors is far greater than the number for any other chapter in this report. Space/layout constraints prevent us from listing all of them on the chapter's first page, so we list them here instead. Their contributions, along with those of the report's other authors, continue to play a critical role in helping us produce a quality document—and are very much appreciated.

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